

Evaluation of a Truck Priority System

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This presentation will detail a study MnDOT conducted to determine if there were ways to improve the operation of heavy trucks passing through traffic signal controlled intersections on rural two-lane two-way highways. By creating a priority for trucks at these intersections, MnDOT intended to reduce the average delay for trucks and the average delay to all vehicles by reducing platooning observed behind stopped trucks. The design chosen for the Truck Priority system implements a series of two standard loop detectors located a specific distance apart in advance of the intersection. The signal controller will hold the green phase for a vehicle only if both loop detectors are activated, which denotes a truck or other large vehicle. Evaluation of the Truck Priority System was based on average vehicle delay and number of stops of all vehicles and only trucks, cross roadway delay, location of first truck in the queue, and frequency of truck priority benefit. The intersection of T.H. 24 and Sherburne County State Aid Highway 8 was selected based on the recommendations from the 2002 study and the District Traffic Engineer. The intersection is isolated on a high speed two-lane highway without advance warning flashers and relatively high volumes of traffic (17,800 AADT) and truck traffic (1,850 HC). The project resulted in a reduction of delays to both trucks and all vehicles as well as stops to trucks with only a slight increase in cross street delay. The Truck Priority is estimated to reduce the annual truck delay at this intersection by 158 hours. This reduction, using MnDOT's tractor-trailer rental rates and prevailing wage rates, translates into an annual operational cost savings of nearly \$15,000 to the trucking industry.